

Sympatric breeding of two Spot-billed Duck *Anas poecilorhyncha* taxa in southern China

by Paul J. Leader

Received 17 November 2005

Spot-billed Duck *Anas poecilorhyncha* is generally considered a single species with three subspecies: *poecilorhyncha*, *haringtoni* and *zonorhyncha* (e.g. Dickinson 2003). However, its taxonomy has long been problematic; many workers have inferred close relationships with South Pacific mallards and treated the more northerly *zonorhyncha* as a race of *poecilorhyncha* (e.g. Johnsgard 1979), or have included both *zonorhyncha* and Pacific Grey Duck *A. superciliosa* within *poecilorhyncha* (Delacour 1956, Johnsgard 1978). Livezey (1991), based on an analysis of external morphology, considered that they comprised two species: *A. poecilorhyncha* (including *haringtoni* as a subspecies) and *A. zonorhyncha*. This treatment has been reinforced more recently by Rasmussen & Anderton (2005). Here I report on sympatric breeding of *A. p. haringtoni* and *zonorhyncha* in southern China which further supports the treatment of *zonorhyncha* and *poecilorhyncha* as specifically distinct.

The taxon *poecilorhyncha* is restricted to the Indian subcontinent, east as far as Manipur (Delacour 1956, Johnsgard 1979). The range of *haringtoni* is noted as eastern Assam, Burma and Indochina south to c. 17°N and north to northern Yunnan (Dement'ev & Gladkov 1967, Delacour 1956, Vaurie 1965). Cheng (1979, 1987) listed *haringtoni* from Yunnan and possibly Guangzhou, Guangdong province, the latter record being based on Fok (1937). Carey & Melville (1996) discussed two other Guangdong specimens of *haringtoni* in the Natural History Museum, Tring. One of these is potentially a market bird from Canton; the other is a male collected by Vaughan on 5 April 1905 at 'Sam Shui, Kwang Tung.'

Although Spot-billed Duck has long been known to occur regularly in south China and Hong Kong (e.g. Vaughan & Jones 1913), it had been generally considered that the only taxon occurring in Hong Kong was *zonorhyncha*. The presence of *haringtoni* in Hong Kong was first noted in 1974, but there were no further records until 1993 (Carey & Melville 1996, Carey *et al.* 2001). Since 1993 *haringtoni* has occurred regularly, albeit in smaller numbers than *zonorhyncha*. Carey *et al.* (2001) noted that *haringtoni* is apparently resident, with a max. 40 in October 1997. A female with chicks has been noted in June, display in February, and copulation in April and September. Female *zonorhyncha* have been noted with chicks in April–May and display in March–April. Numbers of *zonorhyncha* increase in winter when this form accounts for c.90% of all Spot-billed Ducks. The precise number of breeding birds of both taxa is unknown due to their secretive nature at this season (Carey *et al.* 2001).

Methods

During 1994 and 1997–2005 I collected information on paired birds, in order to assess relative abundance, and to determine whether mixed pairs occur. Additional data were provided by G. Carey. Birds were treated as paired when they comprised a male and a female, based on the plumage criteria in Carey & Melville (1996), in very close proximity (no more than 2 m apart) and clearly unassociated with any other ducks (at least 100 m distant). Both birds were examined to determine which taxon was involved. Paired birds in groups or loose groups were ignored, even though mixed flocks were very rarely encountered. On those occasions when one of the birds could not be identified (too distant or obscured by vegetation) the data were disregarded. Observations were not systematic but were undertaken regularly (several times per month for most of the period).

Study area

The study focused on the Mai Po Nature Reserve in north-western New Territories, Hong Kong, People's Republic of China. Adjacent wetlands, primarily commercial fishponds, were also visited, though fewer duck tend to use such habitats in Hong Kong.

Results

During 1994 and 1997 to 2005, a minimum of 23 pairs of Spot-billed Ducks were recorded. Of these 11 (48%) were paired *haringtoni*, ten (43%) paired *zonorhyncha* and two (9%) were mixed pairs (Table 1). The mixed pairs comprised a male *haringtoni* and a female *zonorhyncha* in 1999, and a male *haringtoni* and a female with mixed features that was considered to be a *haringtoni* × *zonorhyncha* hybrid in 2005. The pattern of occurrence of the two taxa (plus birds unidentified to taxon) during the same period is shown in Fig. 1, based on monthly waterbird counts undertaken by the Hong Kong Birdwatching Society.

TABLE 1

Composition of paired Spot-billed Ducks *Anas poecilorhyncha* in Hong Kong in 1994 and 1997–2005.

		1994	1997	1998	1999	2000	2001	2002	2003	2004	2005	Totals
<i>haringtoni</i>	No. of sightings	3	4	4	1	2	0	0	0	5	4	23
	of pairs											
	Min. no. of pairs	2	1	1	1	2	0	0	0	2	2	11
<i>zonorhyncha</i>	No. of sightings	1	1	5	2	0	3	1	1	3	3	20
	of pairs											
	Min. no. of pairs	1	1	1	1	0	1	1	1	1	2	10
Mixed pairs	No. of sightings	0	0	0	2	0	0	0	0	0	2	4
	of pairs											
	Min. no. of pairs	0	0	0	1	0	0	0	0	0	1	2
Total number of pairs		3	2	2	3	2	1	1	1	3	5	23

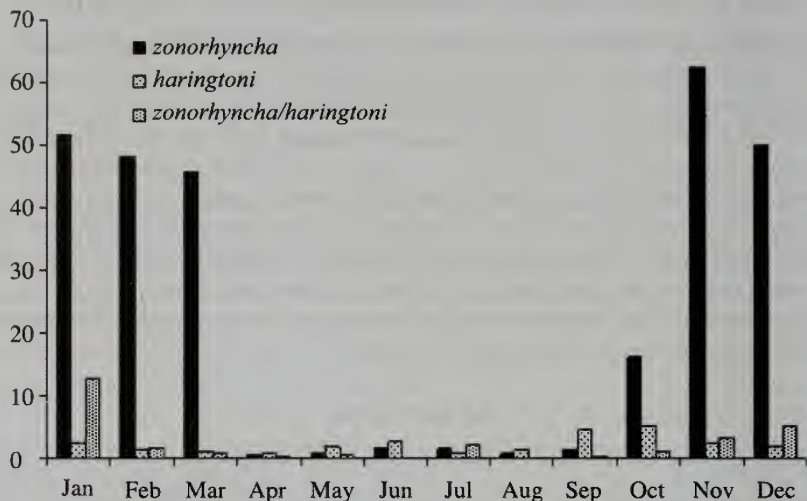


Figure 1. Mean numbers per month of Spot-billed Ducks *Anas poecilorhyncha* in Deep Bay, Hong Kong in 1994 and 1997–2005 (Hong Kong Birdwatching Society data).

Discussion

Both *zonorhyncha* and *poecilorhyncha* breed over huge areas, largely allopatrically, but are in contact in a small area in Hong Kong, where the timings of the breeding cycle overlap extensively, yet mixed pairs are rare. Pure pairs of *zonorhyncha* and *poecilorhyncha* (of race *haringtoni*) account for 91% of pairs and mixed pairs 9%; thus *zonorhyncha* and *haringtoni* exhibit relatively high levels of assortative mating, supporting their treatment as species. The hybrid female observed in 2005 is the only record of such an individual in Hong Kong, despite careful checks of many hundreds of Spot-billed Ducks since 1993 (pers. obs.).

Treatment of *haringtoni* as a race of *poecilorhyncha* and its true distribution deserve further study. In Hong Kong *haringtoni* appears morphologically very distinct from nominate *poecilorhyncha*, most notably in lacking a red bill spot even during the breeding season, but also in being more uniform overall and distinctly less spotted below. There are marked inconsistencies in the literature regarding the red bill spots in *haringtoni*; whilst some authors consider them to be smaller than those of *poecilorhyncha* (Madge & Burn 1992), others state that *haringtoni* lacks red bill-spots (Smythies 1986) or has at best only very faint traces of them (Baker 1927). Possibly this character in *haringtoni* is clinal, and that birds in the east lack bill spots; Rasmussen & Anderton (2005) stated that specimens of *haringtoni* from north-east India and Myanmar are very like nominate *poecilorhyncha*. Smythies (1986) stated that *poecilorhyncha* has been obtained in west Myanmar in Arakan and Upper Chindwin (=Sagaing), and that *haringtoni* is resident more or less

throughout the country, but commoner in the dry zone and the Shan States. A further possibility is that *haringtoni* is morphologically distinct from *poecilorhyncha* and those records of *haringtoni* referred to in, e.g., Rasmussen & Anderton (2005) are mislabeled *poecilorhyncha* and that both *haringtoni* and *poecilorhyncha* occur in Assam and western Myanmar. A check by P. C. Rasmussen of *haringtoni* specimens from Myanmar and one from south China at The Natural History Museum (Tring) confirmed that they lack a red spot, whereas all Indian skins, including those from Assam have a prominent red spot. There was no evidence of clinal variation or sympatry between *haringtoni* and *poecilorhyncha* (P. C. Rasmussen pers. comm.), but this requires checking against a larger sample and/or in the field.

A further source of potential confusion is the similarity of juvenile *poecilorhyncha* to adult *haringtoni*, a problem which has generally been overlooked in the literature; a photograph of an apparent juvenile *poecilorhyncha* is available at: www.orientalbirdimages.org/search.php?p=12&action=searchresult&Bird_ID=183&Bird_Family_ID=&pagesize=1.

Conclusions

The sympatric breeding of *haringtoni* and *zonorhyncha* in Hong Kong supports the recognition of more than one species of Spot-billed Duck, and I recommend that *zonorhyncha* and *poecilorhyncha* be treated specifically, with *haringtoni* a subspecies of *poecilorhyncha*, seconding Livezey (1991). However, further work is required on the relationship between the latter two taxa and the extent to which they differ morphologically warrants further study. Additionally, the status of *haringtoni* in eastern India, especially the question as to whether it breeds there, requires review. Most (if not all) breeding records of *haringtoni* in this area are from Baker (1927) and many of his records have been queried, especially those of breeding, most recently by Rasmussen & Anderton (2005).

Acknowledgements

I thank Geoff Carey for providing additional data, and he and Mike Leven commented on the manuscript. Pamela Rasmussen also commented on the manuscript and kindly checked specimens at The Natural History Museum, Tring. Yu Yat Tung and Carmen K. M. Or of the Hong Kong Birdwatching Society helped extract information from the Society's waterfowl count data.

References:

- Baker, E. C. S. 1927. *The fauna of British India. Birds*, vol. 4. Taylor & Francis, London.
- Carey, G. J., Chalmers, M. L., Diskin, D. A., Kennerley, P. R., Leader, P. J., Lewthwaite, R. W., Leven, M. R., Melville, D. S., Turnbull, M. & Young, L. 2001. *The avifauna of Hong Kong*. Hong Kong Bird Watching Society, Hong Kong.
- Carey, G. J. & Melville, D. S. 1996. Spot-billed Ducks in Hong Kong. *Hong Kong Bird Rep.* 1995: 224–230.
- Cheng Tso-hin. 1979. *Fauna Sinica. Aves*, vol. 2. Science Press, Beijing.
- Cheng Tso-hin. 1987. *A synopsis of the avifauna of China*. Science Press, Beijing & Paul Parey, Hamburg & Berlin.
- Delacour, J. 1956. *The waterfowl of the world*, vol. 2. Country Life Books, London.

- Dement'ev, G. P. & Gladkov, N. A. 1967. *Birds of the Soviet Union*, vol. 4. Israel Program for Scientific Translations, Jerusalem.
- Dickinson, E. C. (ed.) 2003. *The Howard & Moore complete checklist of the birds of the world*. Third edn. Christopher Helm, London.
- Fok, Y. S. 1937. Birds of Kwangtung, Kwangsi and Fukien. *Hong Kong Naturalist* 8: 17–28.
- Johnsgard, P. A. 1979. Order Anseriformes. Pp. 425–506 in Mayr, E. & Cottrell, G. W. (eds.) *Checklist of the birds of the world*, vol. 1. Second edn. Mus. Comp. Zool., Harvard Univ. Press, Cambridge, MA.
- Livezey, B. C. 1991. A phylogenetic analysis and classification of recent dabbling ducks (Tribe Anatini) based on comparative morphology. *Auk* 108: 471–507.
- Madge, S. & Burn, H. 1992. *Wildfowl*. Christopher Helm, London.
- Rasmussen, P. C. & Anderton, J. C. 2005. *Birds of south Asia. The Ripley guide*. Smithsonian Institution, Washington DC & Lynx Edicions, Barcelona.
- Smythies, B. E. 1986. *The birds of Burma*. Nimrod Press, Liss, Hants & Pickering, ON.
- Vaughan, R. E. & Jones, K. H. 1913. The birds of Hong Kong, Macau and the West River or Si Kiang in south-east China, with special reference to their nidification and seasonal movements. *Ibis* 10(1): 17–76, 163–201, 351–384.
- Vaurie, C. 1965. *The birds of the Palearctic fauna. Non-passeriformes*. H. F. & G. Witherby, London.

Address: c/o 127 Commercial Centre, Palm Springs, New Territories, Hong Kong, People's Republic of China, e-mail pjleader@asiaecol.com.hk

© British Ornithologists' Club 2006

Records of some bird species hitherto rarely found in DPR Korea

by J. W. Duckworth

Received 1 December 2005

The Korean peninsula received only superficial ornithological exploration until relatively recently. The birds of the present-day Democratic People's Republic of Korea (DPRK='north Korea') are particularly poorly known (Tomek (1999, 2002). Even the south lacks a published, publicly accessible, synthesis of species status subsequent to Gore & Won (1971), other than coded lists such as Won Pyong-Oh (1996) and Lee *et al.* (2000), though an unpublished thesis (Park Jin-Young 2002) and extensive internet discussion, notably that hosted by the organisation Birds Korea, present records. During 3.5 years in DPRK and three short visits to the country, I surveyed birds extensively in central Pyongyang (the capital), the Myohyang(-san) Mountains and the adjacent town of Hyangsan, and made visits when permitted to other sites, very rarely on or near the coast (Table 1, Fig. 1). I found many species known by few previous records from DPRK according to Tomek's (1999, 2002) comprehensive review. This covers nearly all internationally available sources, but few from DPRK citizens since the monumental Won Hong Koo (1963–65). Judging by records in BirdLife International (2001) substantial